UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/503,258	02/14/2000	Jae-Yoel Kim	678-454 (P9157)	6301

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EXAMINER
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ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/503,258	KIM ET AL.
	Examiner	Art Unit
	Thomas Volper	2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>8 July 2004</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-29</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-29</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicants' arguments filed 8 July 2004 have been fully considered but they are not

persuasive.

2.   In response to Applicants' argument regarding claims 1, 17, 21 and 27 that Gilhousen

discloses a list of codes containing every possible Walsh code, not only codes that cannot

maintain orthogonality, the Examiner does not agree that this traverses the previous rejection.

Claim 1 does not recite "only codes that cannot maintain orthogonality" as Applicants suggest,

rather it omits "only". This is true of claims 17, 21 and 27 as well. Applicants also argue

Gilhousen discloses a list to be searched for an available code, which is different than selecting a

code that cannot maintain orthogonality from the memory and using it for the packet data. This

statement also fails to traverse the previous rejection because it misreads the claim. Claim 1

states " "reading *an available* orthogonal code number out of the orthogonal code numbers

stored in the memory to allocate the read orthogonal code numbers such that packet data is

spread and transmitted...". Thus, Gilhousen's choosing an available code meets this limitation

of claim 1. Claims 17, 21 and 27 use similar claim language, and the same reasoning applies to

these.

3.   In response to Applicants' argument regarding claims 7 and 12 that the apparatus

searches for a code for the data user from the codes that cannot maintain orthogonality, rather

than search for an available code, the Examiner once again disagrees with Applicants' recital of

this claim limitation. Claim 7 actually states "determining whether the respective orthogonal

code numbers stored in the storage medium *are available* at a given data rate, when at least one

data user requests data transmission...". Claim 12 similarly states this limitation. As mentioned

above with respect to claims 1, 17, 21 and 27, Gilhousen discloses searching for an available

code, thus meeting this limitation of claims 7 and 12.

4.   In response to Applicants' argument regarding claim 25 that the previous rejection of

Gilhousen in view of Kumar et al. and Tiedemann, Jr. et al. fails to disclose "generating

orthogonal code numbers which cannot maintain an orthogonality due to an orthogonal code

used at the maximum data rate, by sequentially adding multiples of the received orthogonal code

length to the received orthogonal number", the Examiner respectfully disagrees. Gilhousen

discloses determining codes that would not be able to maintain orthogonality due to a recursive

relationship to a code in use (col. 12, lines 28-31). Table I demonstrates a list of possible codes,

with code "0" (code label 0/1), corresponding to the maximum data rate code. Gilhousen

discloses the code 0/1 prohibits the assignment of any other code because each of the remaining

codes could be derived from, i.e. have a recursive relationship to, code 0/1 (col. 11, lines 59-62).

All of these remaining codes are formed by sequentially adding multiples of the length of the

code corresponding to the maximum data rate, as shown in Table I.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 7, 8 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by

Gilhousen (US 5,751,761).

Regarding claims 7, 11 and 12, Gilhousen discloses a plurality of channel transmitting

circuits (see Figure 5) in a system that assigns orthogonal Walsh codes of varying length on the

basis of channel data rates. The system also includes a cell controller that performs the function

of the Walsh pool generator of the present invention. The cell controller maintains a list of codes

assigned to particular user channels. It is inherent that the system contains a memory, since the

controller maintains a list. The controller is able to determine which codes are recursively

related to the assigned codes, thus unavailable for new assignments (col. 11, line 63 – col. 12,

line10). The codes recursively related to the assigned codes are representative of orthogonal

code numbers that cannot maintain an orthogonality. Due to the tree structure of variable length

Walsh codes, which are related by equation (1), assignment of a shorter length code assigned to a

higher data rate channel precludes the use of certain longer length codes to lower data rate

channels (col. lines 29-62; see also Table I). The controller identifies an available code of

suitable length for a channel of a particular data rate, wherein the code, "0", corresponds to the

maximum data rate (see Table I), and assigns the code to the requesting channel (col. 12, lines

20-40). The data rate select signals from the control processor in Figure 5 demonstrate

multiplying the channel outputs by control signals.

Regarding claims 8 and 13, Table I in the invention of Gilhousen illustrates codes that

have lengths that are multiples of the code, "0", which corresponds to the maximum data rate. In

this particular embodiment, the full length is 16 chips.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   Claims 9, 10 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gilhousen (US 5,751,761) as applied to claims 7, 8 and 11-13 above, and further in view of

Kumar et al. (US 6,418,148).

Regarding claims 9, 10 and 14-16, Gilhousen discloses all of the limitations, except for

allocating codes based on priority of packet data users. Kumar discloses assigning resources

according to priority, wherein the resources comprise CDMA spreading codes (col. 7, lines 38-

60). At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to use the priority assignment of Kumar in assigning the codes in the invention of

Gilhousen. One of ordinary skill in the art would have been motivated to do this to prevent one

user from hogging system resources.

9.   Claims 1-6 and 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gilhousen (US 5,751,761) in view of Kumar et al. (US 6,418,148) and Tiedemann, Jr. et al (US

6,335,922).

Regarding claims 1, 2, 17, 21, 25 and 27, Gilhousen discloses determining code numbers

that are unavailable at a data rate lower than a maximum data rate, generating code numbers

which cannot maintain an orthogonality when the maximum data rate is used, and storing the

non-orthogonal numbers (col. 11, line 63 – col. 12, line 40). The code numbers that cannot

maintain an orthogonality are formed by sequentially adding multiples of the code length of the

code corresponding to the maximum data rate (see Table I; col. 11, lines 29-62). Gilhousen fails

to expressly disclose allocating the code corresponding to the maximum rate to a supplemental

channel for transmitting the circuit data, then allocating a code number to the supplemental

channel for the packet data. Kumar discloses using supplemental channels in a CDMA system

for transmitting variable rate data (see Abstract). Kumar also discloses assigning resources

according to priority, wherein the resources comprise CDMA spreading codes (col. 7, lines 38-

60). Tiedemann discloses that when allocating resources in a CDMA system, priority should be

given to voice data over any transmission of data traffic (col. 4, lines 18-35). "Voice data"

represents the circuit data of the present invention, while "data traffic" represents the packet data

of the present invention. At the time the invention was made, it would have been obvious to a

person of ordinary skill in the art to use supplemental channels in the CDMA system of

Gilhousen and to give voice data priority to the code representing the maximum rate. One of

ordinary skill in the art would have been motivated to use supplemental channels to provide

efficient utilization of system resources. One of ordinary skill in the art would have been

motivated to give voice, or circuit data, priority to the code corresponding to the maximum rate

because voice data is delay sensitive.

Regarding claims 3, 18, 22 and 26, Table I in the invention of Gilhousen illustrates codes that have lengths that are multiples of the code, "0", which corresponds to the maximum data rate. In this particular embodiment, the full length is 16 chips.

Regarding claims 4, 23, 24, 28 and 29, Gilhousen discloses determining, based on a BUSY list of codes, a code that is available for a requesting channel that has a length corresponding to the data rate of that channel (col. 12, lines 20-40).

Regarding claims 5, 19 and 20, Gilhousen discloses all of the limitations, except for allocating codes based on priority of packet data users. Kumar discloses assigning resources according to priority, wherein the resources comprise CDMA spreading codes (col. 7, lines 38-60). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the priority assignment of Kumar in assigning the codes in the invention of Gilhousen. One of ordinary skill in the art would have been motivated to do this to prevent one user from hogging system resources.

Regarding claim 6, Gilhousen discloses a set of Walsh codes (Table I) that may be used to select a code to spread data provided that the selected code is not recursively related to any currently assigned code (col. 12, lines 20-40). The code, "0", corresponds to the maximum data rate, since this is the shortest code, i.e. root node.

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

11.   Any inquiry concerning this communication, or earlier communications from the

examiner should be directed to Thomas Volper whose telephone number is (571) 272-3151. The

examiner can normally be reached between 8:30am and 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy Vu, can be reached at (571) 272-3155. Any inquiry of a general nature or

relating to the status of this application or proceeding should be directed to the receptionist

whose telephone number is (571) 272-2600.

Thomas E. Volper

October 5, 2004

HUY D. VU
SUPERVISORY PATENT EXAMINER
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